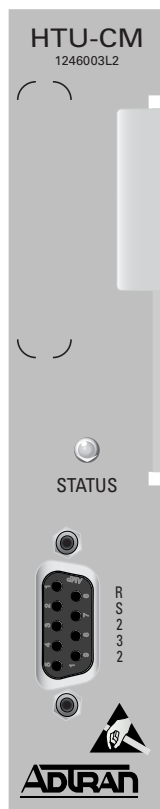


HTU-C / DDM+

CLEI: T1L3B5BA_



STATUS LEDS

STATUS	Color/Action	Description
● RED	Solid	Alarm on any HTU-C loops, HRE loops, DSX or DS1 interface
* FLASHING	Flashing	Signal Quality of 0 or No Sync on at least one loop
● YELLOW	Solid	Loopbacks active
* FLASHING	Flashing	In-band loopbacks armed
● GREEN	Solid	Functioning properly
* FLASHING	Flashing	ES, SES, or BPV detected at either DSX or DS1 interface

RS-232 DB-9 CONNECTOR

- Used to access the HDSL utilities menu tree via VT100 emulation software such as terminal, Hyper Terminal – Private Edition and ProComm Plus.
- Provision terminal port as follows:

Data Rate — 9.6 kbps, 19.2 kbps
Asynchronous Data Format — eight data bits, no parity (none), one stop bit

- Hardware Flow Control should be disabled.
- When using a PC with terminal software, be sure to disable any power saving programs.

COMPLIANCE CODES

This product complies with UL 1459, third edition. It is intended to be installed in an enclosure with an Installation Code (IC) of “B” or “E” and in Restricted Access Locations only. Input current at maximum load is 0.7 A. Output ratings on the network are maximum 165 mA at -190 Vdc.

Code	Input	Output
Power Code (PC)	F	C
Telecommunication Code (TC)	–	X
Installation Code (IC)	A	–

WARRANTY

Warranty for Carrier Networks products manufactured by ADTRAN and supplied under Buyer's order for use in the U.S. is ten (10) years. For a complete copy of ADTRAN's U.S. and Canada Carrier Network Equipment Warranty: (877) 457-5007, Document #414.

HARDWARE SWITCHES

SW1

- Rotary switch sets the DSX-1 line build out

0	0 — sets LBO to 0-133 feet
1	133 — sets LBO to 133-266 feet
2	266 — sets LBO to 266-399 feet
3	399 — sets LBO to 399-533 feet
4	533 — sets LBO to 533-655 feet

Note: Positions 5,6 & 7 are not used.

SW2

- Is used to provision the card. Default settings are in **bold**.

SW2-1	sets the line code to either AMI or B8ZS
SW2-2	sets the T1 framing to either Unframed or Framed

Note: Unframed operation ignores the setting of SW2-3.

SW2-3	sets the T1 framing to either SF or ESF
SW2-4	Enables or disables the NIU loopback option
SW2-5	Enables or disables the Loopback Timeout option
	Default timeout setting is 20 minutes
	Must be enable prior to initiating a loopback

SW3

- Selects the span powering voltage

LV	selects -140 Vdc to span power a single HTU-R or one HRE and an HTU-R
HV	selects -190 Vdc to span power two HREs and an HTU-R



INDICATIONS AND PROBABLE CAUSES

Front Panel or Circuit Parameters Indicate Abnormal Operation

Connect a terminal emulator via the RS-232 (DB-9) craft interface on faceplate. The terminal must be VT100 or compatible and set for 1.2 to 19.2 kbps, 8 data bits, no parity, 1 stop bit. Tap the space bar to establish communication with the unit. Select "M" from the ADTRAN Screen and "1" from the HDSL main menu. Verify the following conditions on the Current System Status Screen:

- Is signal quality fluctuating (graphical meter indicators bouncing up and down)?
- Is LOSS (pulse attenuation) > 30 dB?
- Are there any errors counting on the ES, SES, or UAS registers?
- If signal quality is NOT fluctuating, is it equal on both loops?
- Is the current signal quality indication (uppermost "x" on the meter) more than 1 dB below the MAX?
- Is the current LOSS reading more than 1 dB below the MAX?

If any of these conditions exist, a cable problem is probable and cable testing should be done to verify all HDSL deployment guidelines are met. These conditions may also reflect intermittent cable faults or excessive noise impairments. If intermittent faults or noise impairments are suspected, select "2" from the HDSL main menu and review the Performance History Screen. If all of the above conditions are met, as well as the HDSL Deployment Guidelines (noted below), the circuit should provide quality service and can be released.

Front Panel Indications Under Normal Operation:

STATUS ● Green

Circuit Parameters Under Normal Operation:

LOSS < 35dB

Signal quality of 6 dB or higher, with no fluctuation and equal on both loops

All HDSL Deployment Guidelines are met

HDSL DEPLOYMENT GUIDELINES

- Cable pairs must be non-loaded
- Total bridged tap < 2.5 kft
- No single bridged tap > 2 kft
- 196 kHz insertion loss < 35 dB
- Pulse attenuation (loss on HDSL current system status screen) 30 dB
- Maximum loop resistance is 800 Ω
- Impulse noises < 50 dBm as measured using a 50 kHz filter and quiet termination
- Wideband noise < 31 dBm as measured using a 50 kHz filter and quiet termination

CIRCUIT ID: xxxx 02/03/99 00:07:57
 LOOP #1 <NETWORK> LOOP #2 CURRENT SYSTEM STATUS LOOP #1 <CUSTOMER> LOOP #2
 HTU-C HTU-R

28(28) dB	28(28) dB	<- LOSS	CUR(MAX)	>-	28(28) dB	28(28) dB
YES	YES	<- SYNC		>-	YES	YES
001/00001	001/00001	<- ES	15M/24H	>-	001/00001	000/00000
000/00000	000/00000	<- SES	15M/24H	>-	000/00000	000/00000
000/00000	000/00000	<- UAS	15M/24H	>-	000/00000	000/00000

LOOPBACKS INACTIVE LOOPBACKS INACTIVE

HTU-C SIGNAL QUALITY			DSX-1	DS1	HTU-R SIGNAL QUALITY			
MIN[X]	9	[X]MIN			MIN[X]	9	[X]MIN	
[X]L	8	L[X]	ESF	<- FRAME >	ESF	[X]L	8	L[X]
[X]O	7	O[X]	B8ZS	<- CODE >	B8ZS	[X]O	7	O[X]
[X]Q	6	O[X]	0-133	<- LBO >	0 DB	[X]Q	6	O[X]
[X]P	5	P[X]	N/A	<- NIU >	YES	[X]P	5	P[X]
[X]	4	[X]	00000	<- BPV >	00001	[X]	4	[X]
[X]1	3	2[X]	00000	<- ES >	00001	[X]1	3	2[X]
[X]	2	[X]	00000	<- SES >	00000	[X]	2	[X]
[X]	1	[X]	00000	<- UAS >	00000	[X]	1	[X]
[X]	0	[X]	NONE	<- ALARMS >	NONE	[X]	0	[X]

SEALING CURRENT PRESENT
 Press "Z" to zero registers, "X" to restart MIN/MAX, "M" for Main Menu
 "H" for HDSL Range Extender #1 (HRE) View.